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The costs of prescribing in dispensing practices

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SUMMARY

The existence of significant disparities between the prescribing costs of dispensing and non-dispensing general practices has long been suspected, and received confirmation in a study of Lincolnshire, based on data for 1990–91. This study subsequently attracted much criticism. In this paper, we extend the analysis by considering annual cost and other prescribing data for Lincolnshire for the years between and including 1990–91 and 1993–94, in the light of the prescribing criteria developed by the Audit Commission. Our results show that dispensing practices had higher prescribing costs per patient for all the years analysed. In 1993–94, dispensing practices prescribed more items per patient (fewer of them generically) and were less capable of remaining within their prescribing budgets. The essential difference in prescribing costs lies in the area defined by the Audit Commission as 'core prescribing'. Using the Audit Commission's criteria for 'rational' prescribing, dispensing practices could make a significantly higher level of savings than non-dispensing practices. The findings lend support to the hypothesis advanced in the earlier analysis, namely, that the higher costs of prescribing in dispensing practices are accounted for primarily by management practice and the structure of incentives.

INTRODUCTION

In contrast with non-dispensing general practices in the U.K., practices accorded 'dispensing' status by their local health authorities are permitted to dispense the medicines they prescribe to patients living more than one mile from an independent pharmacy. General practitioners (GPs) offering a dispensing service receive fees and allowances payable from the Department of Health (1). The facility has its origins in the activities of apothecaries in the 17th century, although in its modern form, dispensing in general practice dates back to the Health Insurance Act of 1911. Confirmed in the National Health Service Act of 1948, the facility was ostensibly intended to enhance patient convenience by effectively compensating for the low density of pharmacies in rural areas (2).

In recent years, questions have been raised as to whether GP dispensing actually operates in society's best interests. Research published in 1993 suggested that dispensing practices have higher prescribing costs per patient than non-dispensing practices, mainly as a result of their less frequent use of generic medicines (3). The authors of the study concluded that the higher prescribing costs of dispensing practices were more likely to be the result of the structure of incentives and regulation, rather than of differences in practice characteristics such as rurality. In principle, the receipt of per-item dispensing fees could encourage dispensing general practitioners to prescribe more items. Greater margins on proprietary drugs gives dispensing practices less of an incentive to stock generics (2), whilst the use of generics might actively be discouraged, given that liability for faulty products rests with the dispensing doctor unless the supplier can be clearly identified (4, 5).

The responses to the findings of the 1993 paper were mainly critical. The authors were accused of underestimating the problem of product liability and of overlooking the increases in costs which a rural location brings (6–8). Indeed, rural practices might be obliged to perform more casualty work, to provide more personally administered items such as vaccines and to accept cost-shifting by consultants working in distant hospitals (9). Moreover, dispensing practices might have to prescribe more items that patients with better access to a pharmacy could buy over-the-counter (10). In fairness, the 1993 paper focused primarily on average prescribing expenditure per

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patient, with the result that the analysis was unable to explore the relationship between practice characteristics and prescribing at the level of detail employed by the critics. A further limitation of the original analysis is that it was based upon data collected before indicative (target) prescribing budgets were introduced into general practice.

In view of the critical response, there appears to be a need to re-examine the dispensing issue. The present paper, therefore, has three objectives. First, to update the original analysis, to examine whether the introduction of practice prescribing budgets has affected prescribing behaviour in both dispensing and non-dispensing practices. Second, to enquire whether practice characteristics might account for variations in prescribing costs at low levels of aggregation; in particular, the impact of casualty work, immunizations, hospital cost-shifting and over-the-counter drugs. Finally, to enquire whether any difference in costs which our analysis identifies results solely from differential use of generics, or whether it is more properly attributable to more 'rational' prescribing on the part of non-dispensing practices.

METHOD

The 1993 research, conducted by Morton-Jones and Pringle (3), was based on data from practices within the Lincolnshire Family Health Services Authority for the financial year 1990–91. In order to update the analysis, we obtained equivalent data from Lincolnshire Health for the four financial years 1990–91 and 1993–94, inclusive. During this last year, the authority had 108 practices within its boundaries, although complete data were only available for 100. These 100 practices constitute the sample for all subsequent analysis, and of this group 56 practices had dispensing status.

In 1994, the Audit Commission published a report designed to promote more rational prescribing in general practice (11). To accompany its report, the Commission also produced the *Thematic Analysis of Prescribing* (ACTAP) data-set, comprising the following two main types of prescribing information, (i) data on prescribing strategies which practices might employ to reduce their costs and (ii) the areas of provision within which practices might, to varying degrees, control their expenditures. Amongst the latter are areas particularly noted by the critics of the original paper. Accordingly, ACTAP data for the financial year 1993–94 was collected and analysed.

As a starting point, prescribing costs were measured as net ingredient cost (NIC), that is, expenditure by the National Health Service (NHS) on drugs prescribed, excluding dispensing fees and discounts. This was the measure employed in the original research. However, in keeping with contemporary Department of Health guidance (12), certain of our analyses were performed with respect to NIC per age-sex-temporary-resident-originated prescribing unit (ASTRO-PU). The ASTRO-PU attempts to account for the differences in drug usage which have been found to arise though variations in practice demographic structure, by giving individual weightings to each of the groups mentioned in its title (13).

In comparisons of differences between costs, budgets and other variables, Student's *t*-test is employed. Unless otherwise stated, all results reported as being statistically significant are so at the 95% level. Since the original research was conducted, fundholding has been introduced into general practice. Because it has already been shown for Lincolnshire that fundholders have lower prescribing costs than non-fundholders (14), it was important to consider whether this might prove a source of bias in the results. The proportion of fundholders in the sample was 24% and 14% for non-dispensing and dispensing practices, respectively, although this difference was not statistically significant ($P=0{\cdot}23$).

RESULTS

Table 1 shows that, for each of the four financial years in question, dispensing practices in Lincolnshire had significantly higher NIC per patient than non-dispensing practices. In 1990–91, the mean NIC per patient for dispensing practices was 16% higher than that of non-dispensing practices, and this figure rose to 22% by 1993–94. In our study, NIC per patient in 1990–91 was approximately 3% higher than that reported in the original study, owing to the small difference in sample size between the two studies. During the 1993–94 financial year, dispensing practices prescribed 19% more items per patient on average, and 38% less of these items were generics. At the mean, dispensing practices in this year spent 9% more on prescribing per ASTRO-PU than non-dispensing practices did. No significant difference was evident between dispensing and non-dispensing

Table 1. Aggregated prescribing data (means)

	Dispensing	Non-dispensing	Difference	*P*
NIC per patient (£)				
1990–91	58·4	50·3	8·1	0·001*
1991–92	67·8	58·2	9·6	0·00*
1992–93	75·6	64·5	11·2	0·00*
1993–94	85·6	70·1	15·5	0·003*
Items per patient				
1993–94	11·5	9·7	1·9	0·00*
Percentage generic items				
1993–94	28·9	46·5	− 17·5	0·00*
NIC per 1000 ASTRO-PUs (£)				
1993–94	19 594	17 924	1671	0·01*
of which:				
Hospital and anaesthesia	742	634	109	0·10
Immunological	311	341	− 30	0·12
Dressings, appliances, etc.	1272	1235	37	0·55
Contraceptives, over-the-counter	2197	2222	− 26	0·78
Sub-total	4522	4432	90	0·55
Core prescribing	15 072	13 492	1581	0·01*
Budget per 1000 ASTRO-PUs (£)				
1993–94	18 371	17 676	694	0·21
Budget overspend (%)				
1993–94	7·1	1·3	5·8	0·00*

Asterisks indicate significant results.

practices in expenditure in four particular areas, namely (i) specialist drugs prescribed to practice patients by hospital consultants and the use of anaesthetics, (ii) drugs used for immunization, (iii) dressings, appliances, items used in wound management and preparations used in diagnosis, and (iv) contraceptives and medicines available over-the-counter. The deduction of the sub-total of these four areas from overall NIC per 1000 ASTRO-PUs yields that which the Audit Commission terms 'core prescribing'. On average, dispensing practices spent 12% more on core prescribing than non-dispensing practices did, and this accounts for 95% of the difference in average NIC per ASTRO-PU between the groups. Finally, no significant difference between the two groups' prescribing budgets per ASTRO-PU could be detected for the year 1993–94, and the higher costs of dispensing practices gave rise to a significantly larger average budget overspend.

Analysis of the means disguises intra-sample variation and it is important to highlight the fact that it is not the case that all non-dispensing practices uniquely out-perform all dispensing practices. Evidence in this respect is provided by the frequency distributions of Figs 1 and 2, which relate to 1993–94 NIC per patient and expenditures on core prescribing. These figures demonstrate that, for example, 21% of dispensing practices had 1993–94 NICs per patient of less than £70, lower than those of 45% of non-dispensers. Again, 25% of dispensing practices had core prescribing expenditures of less than £13 000, lower than those of 56% of non-dispensing practices.

Table 2 displays potential savings which practices could realize by following the prescribing strategies identified by the Audit Commission. It is clear that savings are available to both groups, although there exist three headings under which the savings available to dispensing practices are significantly higher than for non-dispensing practices. These are: (i) greater generic prescribing of the 20 most used drugs, (ii) less usage of drugs of limited clinical value; a diverse group including appetite suppressants, NSAIDs, cough suppressants and peripheral vasodilators, and (iii) less usage of drugs typically over-prescribed, including laxatives, vitamins, anxiolytics and antibiotics. After allowing for double-counting, the potential savings available to

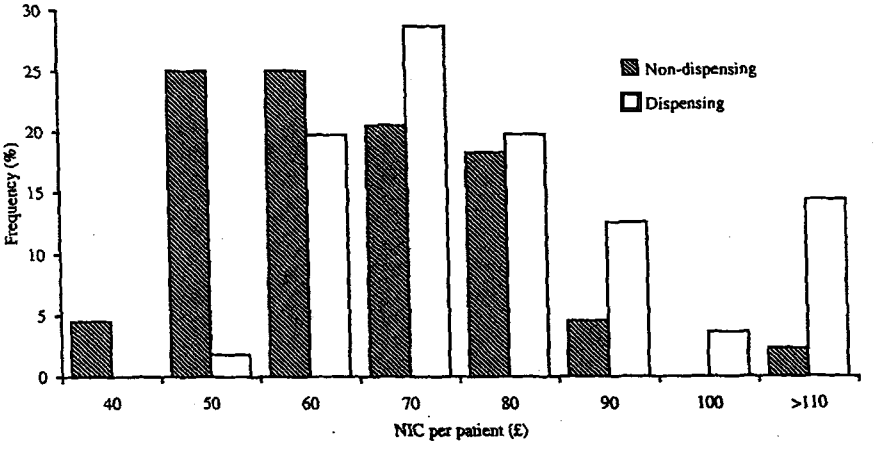

Fig. 1. Frequency distribution of 1993–94 NIC per patient (£).

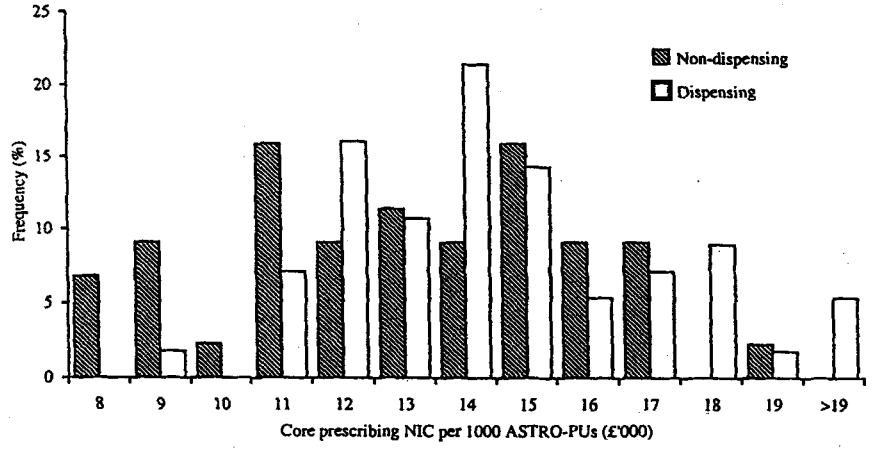

Fig. 2. Frequency distribution of core prescribing expenditures.

dispensing practices are, on average, 54% higher than those available to non-dispensing practices. If we were to assume that all the savings identified in Table 2 had been realized, the mean NIC per ASTRO-PU for dispensing practices in 1993–94 would have amounted to only 1% more than that for non-dispensing practices.

DISCUSSION

Arguably, Lincolnshire does not represent the ideal subject for a case-study in this field, because it possesses both the highest proportion of dispensing practices (3) and one of the highest NICs per patient (15) in the country. It is therefore far from typical. This limitation notwithstanding, the use of more recent Lincolnshire data does permit us to extend and develop the analysis of an important and original piece of research in a consistent fashion.

At the mean, the dispensing practices in our sample had higher prescribing costs per patient for all the years analysed. In 1993–94, dispensing practices prescribed more items per patient, and fewer of them generically. It will be noted from Table 1 that, whilst the NIC per patient for dispensing practices in 1993–94 was 22% higher than for non-dispensing practices, NIC per ASTRO-PU in that year was only 9% higher, although the difference remains significant. This finding suggests that the demographic structures of dispensing practices differ somewhat from those of non-dispensing practices, in possessing greater representation of the higher-weighted age groups. However, the fact that the remainder of the analysis, conducted on an ASTRO-PU basis, continues to detect significant differences suggests that variations between dispensing and non-dispensing practices exist, over and above those resulting from practice demography.

Table 2. Potential savings (£ per 1000 ASTRO-PUs) resulting from prescribing strategies

	Dispensing	Non-dispensing	Difference	*P*
Increased generic prescribing of top 20 drugs	642·9	308·4	334·5	0·00*
Substitution of similar drugs	162·9	126·3	36·6	0·11
Lower usage of premium price drugs	348·1	377·7	− 29·6	0·43
Lower usage of drugs of limited clinical value	386·6	277·3	109·2	0·00*
Lower usage of drugs often over-prescribed	2995·9	1852·0	1144·0	0·00*
Allowance for double-counting	− 276·0	− 171·4	− 104·5	
Total potential savings	4260·3	2770·3	1490·1	0·00*

Asterisks indicate significant results.

In particular, dispensing practices appear less capable of remaining within their prescribing budgets, although they do not differ significantly from non-dispensing practices with respect to non-core prescribing. Neither group appears to possess a differential capacity to resist cost-shifting by hospitals, and neither spends more on immunological or casualty-related products. Moreover, there is no evidence that dispensing practices spend more on drugs that patients could have bought over-the-counter, had they better access to a pharmacy. Instead, the results suggest that the essential difference in prescribing costs lies in the area of core prescribing, that is, prescribing over which the practice has the greatest control. Judged by the Audit Commission's criteria for rational prescribing, the higher level of savings which could have been realized by dispensing practices would have brought their costs down to a level very close to that of the non-dispensing practices. These findings lend considerable support to the original hypothesis of Morton-Jones and Pringle, namely, that the higher costs of prescribing of dispensing practices are accounted for primarily by management practices and the structure of incentives.

Finally, it is pertinent to ask—who gains when a practice possesses dispensing status? Most obviously, the practice itself receives income in the form of fees and allowances. Whether patients receive a better service remains a moot point. Our analysis has been conducted within the Audit Commission's framework of 'rational' prescribing, and according to this framework, dispensing practices could make disproportionate savings without impairing the quality of care provided to patients. Although this is likely to be the framework adopted by health authorities in future resource planning, the criteria themselves have not passed without criticism (16). Developing this point, a full investigation of the effects of differences in prescribing patterns between the two groups would require an analysis of the benefits (such as health gain) that such differences produce, and not just the costs that the differences incur. The issue of patient convenience is equally equivocal. For example, the Royal Pharmaceutical Society has expressed concern that dispensing GPs may be attempting to frustrate the establishment of rival pharmacies in their locality (and therefore to restrict choice), essentially in a desire to protect their local monopoly of dispensing services (17).

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